

09492761

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NEWS 1 Web Page URLs for STN Seminar Schedule - N. America  
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NEWS 3 Feb 06 Engineering Information Encompass files have new names  
NEWS 4 Feb 16 TOXLINE no longer being updated  
NEWS 5 Apr 23 Search Derwent WPINDEX by chemical structure  
NEWS 6 Apr 23 PRE-1967 REFERENCES NOW SEARCHABLE IN CAPLUS AND CA  
NEWS 7 May 07 DSENE Reload  
NEWS 8 Jun 10 Published patent applications (A1) are now in USPATFULL  
NEWS 9 JUL 13 New SDI alert frequency now available in Derwent's  
DSRI and IFCI

NEWS EXPRESS August 15 CURRENT WINDOWS VERSION IS V6.0,  
CURRENT MACINTOSH VERSION IS V6.0 (ENG) AND V6.11 (JP),  
AND CURRENT DISCOVER FILE IS DATED 07 AUGUST 2001

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FILE 'HOME' ENTERED AT 14:52:34 ON 16 AUG 2001

=> file medline biosis embase caplus uspatfull

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	0.21	0.21

FILE 'MEDLINE' ENTERED AT 14:53:16 ON 16 AUG 2001

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 PLEASE SEE "HELP USAGETERMS" FOR DETAILS.  
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FILE 'USPATEFULL' ENTERED AT 14:53:16 ON 16 AUG 2001  
 OR INDEXING COPYRIGHT (C) 2001 AMERICAN CHEMICAL SOCIETY ACS

=> s kcnq4 (s) potassium (s) channel (s) nucle?>

L1 8 KCNQ4 (S) POTASSIUM (S) CHANNEL (S) NUCLE?

=> dup rem l1

PROCESSING COMPLETED FOR L1

L1 8 DUP REM L1 (8 DUPLICATES REMOVED)

=> s l1 total ikib kwic

L1 ANSWER 1 OF 5	MEDLINE	DUPLICATE 1
ACCESSION NUMBER:	2001247527	MEDLINE
DOCUMENT NUMBER:	21167757	PubMed ID: 11136320
TITLE:	An ERG channel inhibitor from the scorpion <i>Buthus eupeus</i> .	
AUTHOR:	Korolkova Y V; Kozlov S A; Lipkin A V; Pluzhnikov N A; Hadley J K; Filippov A K; Brown D A; Angelo K; Strckbaek D; Jespersen T; Olesen S P; Jensen B S; Grishin E V	
CORPORATE SOURCE:	Snemyakin and Ovchinnikov Institute of Biorganic Chemistry, Russian Academy of Sciences, Ul. Miklukho-Maklaya, 16/10, 117997, GSP-7, Moscow, Russia.. july@ibch.ru	
SOURCE:	JOURNAL OF BIOLOGICAL CHEMISTRY, (2001 Mar 30) 276 (13) 9868-76.	
PUB. COUNTRY:	United States	
LANGUAGE:	English	
FILE SEGMENT:	Priority Journals	
OTHER SOURCE:	GENEANK-AFI 6-13	
ENTRY MONTH:	200103	
ENTRY DATE:	Entered STN: 20010317	
	Last Updated in STN: 2001.519	
	Entered Medline: 20010810	

AB . . . (1996) FEBS Lett. 384, 277-280). Here we report the cloning, expression, and selectivity of BeKm-1. A full-length cDNA of 365 **nucleotides** encoding the precursor of BeKm-1 was isolated using the rapid amplification of cDNA ends polymerase chain reaction technique from mRNA. . . amino acid residues. The mature toxin consists of 36 amino acid residues. BeKm-1 belongs to the family of scorpion venom **potassium channel** blockers and represents a new subgroup of these toxins. The recombinant BeKm-1 was produced as a Protein A fusion product. . . partly inhibited the native M-like current in NG108-15 at 100 nm. The effect of the recombinant BeKm-1 on different K(+) **channels** was also studied. BeKm-1 inhibited hERG1 **channels** with an IC(50) of 3.3 nm, but had no effect at 100 nm on hEAG, hSK1, rSK2, hIK, hBK, KCNQ1 KCNE1, KCNQ2/KCNQ3, **KCNQ4 channels**, and minimal effect on rELK1. Thus, BeKm-1 was shown to be a highly specific blocker of hERG1 **potassium channels**.

L2 ANSWER 2 OF 5 CAPLUS COPYRIGHT 2001 ACS  
 ACCESSION NUMBER: 2100742115 CAPLUS

DOCUMENT NUMBER: 133:145918  
 TITLE: Cloning of a novel potassium channel protein KCNQ4 gene and its therapeutic uses  
 INVENTOR(S): Petrukhin, Konstantin; Taskay, N. Thomas L.; Wang Metzker, Michael L.  
 PATENT ASSIGNEE(S): Merck & Co., Inc., USA  
 SOURCE: PCT Int. Appl., 64 pp.  
 CODEN: PIXXD1  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000061606	A1	20001019	WO 2000-US9857	20000411

W: CA, JP, US

RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MT, NL, PT, SE

PRIORITY APPLN. INFO.: US 1999-129274 P 19990414

REFERENCE COUNT: 2

REFERENCE(S): (1) Mananura; NeuroReport 2000, V11(9), P2363 CAPLUS  
 (2) Wang; Science 1998, V282, P1890 CAPLUS

IT Primers (nucleic acid)

RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses (DNA, for screening **KCNQ4** gene mutation; cloning of novel **potassium channel** protein **KCNQ5** gene and its therapeutic uses)

L2 ANSWER 3 OF 7 CAPLUS COPYRIGHT 1999 A1

ACCESSION NUMBER: 133:145918 CAPLUS

DOCUMENT NUMBER: 133:145918

TITLE: Protein and DNA sequences of a novel potassium channel

protein **KCNQ4** and the uses thereof in drug screening  
 Jentsch, Thomas J.

INVENTOR(S): Neurosearch A/S, Den.

PATENT ASSIGNEE(S): PCT Int. Appl., 65 pp.

SOURCE: CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000044786	A1	20000803	WO 2000-DK24	20000119

W: AE, AL, AM, AO, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CO, CR, CU, CY, DE, DK, DM, DO, DZ, EC, EE, EG, FI, GB, GD, GE, GR, GU, HK, HN, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LI, LR, LS, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MY, NZ, OL, OM, OS, PA, PG, PH, PK, PL, PT, RO, RU, SA, SE, SG, SI, SK, SL, SN, SR, ST, SV, TD, TF, TG, TH, TJ, TM, TR, TT, UA, UG, UZ, VC, VE, VI, VN, YU, ZA, ZM, ZW

RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AI, BB, BR, BY, CL, CO, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SG, SI, SK, SL, SN, SR, ST, SV, TD, TF, TG, TH, TJ, TM, TR, TT, UA, UG, UZ, VC, VE, VI, VN, YU, ZA, ZM, ZW

PRIORITY APPLN. INFO.: DK 1999-76 A 19990126

DK 1999-693 A 19990519

REFERENCE COUNT: 7

REFERENCE(S): (1) Biervert, C; Science 1998, V279, P403 CAPLUS  
 (2) Hong-Sheng, W; Science 1998, V282, P1890  
 (3) Kubisch, C; Cell 1999, V96(3), P437 CAPLUS  
 (6) Univ Utah Res Found; WO 9723598 A 1997 CAPLUS  
 (7) Univ Utah Res Found; WO 9921875 A 1999 CAPLUS  
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT Primers (nucleic acid)

RI: ARG (Analytical reagent use); ANST (Analytical study); USBS (Uses  
 for screening **KCNQ4** gene mutation; protein and DNA sequences  
 of novel **potassium channel** protein  
**KCNQ4** and uses thereof in drug screening)

IT Probes **nucleic acid**  
 RI: ARG (Analytical reagent use); ANST (Analytical study); USBS (Uses  
 for screening **KCNQ4** gene mutation; protein and DNA sequences  
 of novel **potassium channel** protein **KCNQ4**  
 and uses thereof in drug screening)

IT 223139-88-2 286968-09-0  
 RI: BOC (Biological occurrence); PRP (Properties); THU (Therapeutic use);  
 BIDL (Biological study); OCCU (Occurrence); USES (Uses  
**nucleotide** sequence; protein and DNA sequences of novel  
**potassium channel** protein **KCNQ4** and uses  
 thereof in drug screening)

IT 286968-66-9, 37: PN: W00044786 PAGE: 26 unclaimed DNA  
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 FL: PRP (Properties)  
 unclaimed **nucleotide** sequence; protein and DNA sequences of  
 a novel **potassium channel** protein **KCNQ4**  
 and the uses thereof in drug screening)

L2 ANSWER 4 OF 5 MEDLINE DUPLICATE 2  
 ACCESSION NUMBER: 2000226104 MEDLINE  
 DOCUMENT NUMBER: 20226104 PubMed ID: 10760300  
 TITLE: **KCNQ4**, a K<sup>+</sup> channel mutated in a form of dominant  
 deafness,  
 is expressed in the inner ear and the central auditory  
 pathway.  
 COMMENT: Comment in: Proc Natl Acad Sci U S A. 2000 Apr  
 11;97(9):3786-9  
 AUTHOR: Kharkovets T; Hancelin J P; Safieddine S; Schneider M;  
 El-Amraoui A; Petit C; Jentsch T J  
 CORPORATE SOURCE: Centrum für Molekulare Neurobiologie Hamburg, Universität  
 Hamburg, Martinistraße 5, D-20246 Hamburg, Germany.  
 SOURCE: PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE  
 UNITED STATES OF AMERICA, 127(9):3786-9, 2000 Apr 11.  
 Journal code: PV3; 7505876. ISSN: 0027-8424.  
 PUB. COUNTRY: United States  
 LANGUAGE: English  
 FILE SEGMENT: Priority Journals  
 ENTRY MONTH: 200005  
 ENTRY DATE: Entered STN: 20000525  
 Last Updated on STN: 20000525  
 Entered Medline: 20000517

AB Mutations in the **potassium channel** gene **KCNQ4**  
 underlie DFNA2, an autosomal dominant form of progressive hearing loss in  
 humans. In the mouse cochlea, the transcript has been found exclusively  
 in  
 the outer hair cells. By using specific antibodies, we now show that  
**KCNQ4** is situated at the basal membrane of these sensory cells. In  
 the vestibular organs, **KCNQ4** is restricted to the type I hair  
 cells and the afferent calyx-like nerve endings ensheathing these sensory  
 cells. Several lines of evidence suggest that **KCNQ4** underlies  
 the I(K,n) and g(K,L) currents that have been described in the outer and  
 type I hair cells, respectively, and that are already open at resting  
 potentials. **KCNQ4** is also expressed in neurons of many, but not  
 all, **nuclei** of the central auditory pathway, and is absent from  
 most other brain regions. It is present, e.g., in the cochlear  
**nuclei**, the **nuclei** of the lateral lemniscus, and the

inferior colliculus. This is the first ion channel shown to be specifically expressed in a sensory pathway. Moreover, the expression pattern of **KCNQ4** in the mouse auditory system raises the possibility of a central component in the IPNAI deafness.

L2 ANSWER 6 OF 6 CAPLUS COPYRIGHT 1991 AND  
 ACCESSION NUMBER: 1999:104414 CAPLUS  
 DOCUMENT NUMBER: 131:1241  
 TITLE: **KCNQ4**, a novel potassium channel subunit expressed in outer hair cells, is mutated in a form of deafness  
 AUTHOR S: Kubison, Christian; Schneider, Brian D; Friedman, Thomas; Lutzmann, Björn; El-Amra, Amir; Gailán, Sandrine; Petit, Christine; Genton, Thomas J.  
 CORPORATE SOURCE: Zentrum für Molekulare Neurobiologie Hamburg  
 SOURCE: Universität Hamburg, Hamburg, D-20246, Germany  
 Cell (Cambridge, Mass.) (1999), 96(3), 437-446  
 CODEN: CELLE5; ISSN: 0092-8674  
 PUBLISHER: Cell Press  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 REFERENCE COUNT: 43  
 REFERENCE(S): (1) Barhanin, J; Nature 1996, V384, P78 CAPLUS  
 (2) Biervert, C; Science 1998, V279, P403 CAPLUS  
 (3) Charlier, C; Nat Genet 1998, V18, P53 CAPLUS  
 (4) Chouabe, C; EMBO J 1997, V16, P8472 CAPLUS  
 (6) Denoyelle, F; Nature 1998, V393, P319 CAPLUS  
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT 223239-55-2 223239-56-3 223239-57-4 223239-58-5 223239-59-6  
 223239-60-9 223239-61-0 223239-62-1 223239-63-2 223239-64-3  
 223239-65-4 223239-66-5 223239-67-6 223239-68-7 223239-69-8

RL: PRP Properties:

(nucleotide sequence; cDNA and genomic sequences of human  
**KCNQ4**, potassium channel expressed in  
 sensory outer hair cells, that is mutated in dominant deafness)

=> log y

COST IN U.S. DOLLARS	SINCE FILE	TOTAL
FULL ESTIMATED COST	ENTRY	SESSION
	13.05	13.26

STN INTERNATIONAL LOGOFF AT 14:54:29 ON 16 AUG 2001

09492361results

SEQ ID NO 1

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DEFINITION Sequence 1 from Patent WO0044786.  
ACCESSION AK032994  
VERSION AK032994.1 GI:10279895  
KEYWORDS  
SOURCE human.  
ORGANISM Homo sapiens  
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.  
REFERENCE 1 bases 1 to 2335  
AUTHORS Jentsch, T J.  
TITLE Novel potassium channels and genes encoding these potassium  
channels  
JOURNAL Patent: WO 0044786-A 1 03-AUG-2000;  
NEURORESEARCH AS (DK)  
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Matches 2335; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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 Qy 2101 cccagc 2160  
 Db 2101 CCAGC 2160  
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 VERSION AF105212.1 GI:4262523  
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 Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.  
 REFERENCE 1 (bases 1 to 2335)  
 AUTHORS Kubisch,C., Schroeder,B.C., Friedrich,T., Luetjohann,B.,  
 El-Amraoui,A., Marlin,S., Petit,C. and Jentsch,T.J.  
 TITLE KCNQ4, a novel potassium channel expressed in sensory outer hair  
 cells, is mutated in dominant deafness  
 JOURNAL Cell 96 (3), 437-446 (1999)  
 MEDLINE 99148276  
 REFERENCE 2 (bases 1 to 2335)  
 AUTHORS Kubisch,C., Schroeder,B.C., Friedrich,T., Luetjohann,B. and  
 Jentsch,T.J.  
 TITLE Direct Submission  
 JOURNAL Submitted (10-NOV-1998) Zentrum fuer Molekulare Neurobiologie  
 Hamburg (ZMNH), University of Hamburg, Martinistrasse 80, Hamburg  
 20246, Germany  
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 KW agonist; antagonist; tinnitus; hearing loss; neonatal deafness;  
 KW presbycusis; affective disorder, Alzheimer's disease; anxiety;  
 KW ataxia; cognitive deficits; compulsive behavior; dementia;  
 KW depression; Huntington's disease; mania; memory impairment;  
 KW motor disorders; neurodegenerative disease; Parkinson's disease;  
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 XX  
 PP 18-JAN-2000; 2000W1-BK00024.  
 XX  
 PR 26-JAN-1999; 99DF-0000076.  
 PP 19-MAY-1999; 99DF-0000693.  
 XX  
 FA (NEUR-) NEUROSEARCH AS.  
 XX  
 FI Jentsch TJ;  
 XX  
 LF WPI; 2000-548813/50.  
 DF P-PSDB; AAB01476.  
 XX  
 FT Nucleic acids encoding the novel KCNQ4 potassium channel subunit,  
 FT useful e.g. for treating tinnitus, deafness, Alzheimer's and  
 FT Parkinson's diseases  
 XX  
 FS Claim 1; Page 43-48; 65pp; English.  
 XX  
 CC Mutations in 3 known genes of the KCNQ branch of the potassium  
 CC channel gene family underlie inherited cardiac arrhythmia's, neonatal  
 CC epilepsy and in some cases associated with deafness. KCNQ4 has been  
 CC mapped to the DFNA2 locus for autosomal dominant hearing loss, and  
 CC a dominant negative KCNQ4 mutation that causes deafness in a DFNA2  
 CC pedigree has been identified. KCNQ4 is the first potassium channel  
 CC gene underlying non-syndromic deafness. KCNQ4 forms heteromeric  
 CC channels with other KCNQ channel subunits, especially KCNQ3.  
 CC Nucleotides encoding the KCNQ4 protein and the protein itself may be  
 CC used in the prevention, treatment and diagnosis of diseases  
 CC associated with inappropriate KCNQ4 expression. The nucleotides may  
 CC also be used as DNA probes in diagnostic assays (e.g. polymerase  
 CC chain reactions (PCR)) to detect and quantitate the presence of  
 CC similar nucleic acid sequences in samples and to identify mutations  
 CC within them, and hence which patients may be in need of restorative  
 CC therapy. They may also be used to study the expression and function  
 CC of KCNQ4 polypeptides and their role in metabolism, for example  
 CC through the production of transgenic animals. The KCNQ4 polypeptides



Db 661 ccagggcaacatctcttcggccacgtccggcgctggcgagcatggcgttccctgcagatccctgng 707  
 Qy 721 catggtggcgcattggacccggcgggggacccggaagctgctgggtccagtgggtctataga 761  
 Db 721 catggtggcgcattggacccggcgggggacccggaagctgctgggtccagtgggtctataga 761  
 Qy 781 gcatagcaaggagctgataccggcctggtacatccggttctctagc 821  
 Db 781 gcatagcaaggagctgataccggcctggtacatccggttctctagc 821  
 Qy 841 cttccctgggtacccggcgagagaagggaagcccaactccgacttctctctatagcagc 881  
 Db 841 cttccctgggtacccggcgagagaagggaagcccaactccgacttctctctatagcagc 881  
 Qy 901 gctctgggtgggggacgattacattgacaaccatcggtatggtgacaagacacccgacac 941  
 Db 901 gctctgggtgggggacgattacattgacaaccatcggtatggtgacaagacacccgacac 941  
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 Db 1021 gcccgccggcatccataggtccggcttggccctgaagggtccaggagcagcaccggcagaa 1080  
 Qy 1081 gcacttcgagaagcggaggatgccggcgagcccaacctcatccaggtgcctggcgctgta 1140  
 Db 1081 gcacttcgagaagcggaggatgccggcgagcccaacctcatccaggtgcctggcgctgta 1140  
 Qy 1141 cttccaccgatatgagccgggctacccgacagccacccggtactactatgacagctatcc 1201  
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 Db 1201 cccatccttcagagagctggccctcttgtttgagcacgtgcaacggggcccaatggggg 1261  
 Qy 1261 cctacggcccttgagggtgcggcgggcgccgggtaccggacggagcaccctcccggtaccc 1320  
 Db 1261 cctacggcccttgagggtgcggcgggcgccgggtaccggacggagcaccctcccggtaccc 1320  
 Qy 1321 gcccggttgccacctgccaccggccggggcagcacctcctctgcccctggggaaagcagccg 1380  
 Db 1321 gcccggttgccacctgccaccggccggggcagcacctcctctgcccctggggaaagcagccg 1380  
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 Db 1501 caccagccccaccaaggtgcaaaagagctggagctcaatgacggcagcaggtcttggg 1561  
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 Db 1561 atctctgagactcaaaccggcacctctgctgaggatgcctctcagagggaagttagaga 1620  
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 Qy 1681 catccgctccatcaggattctcaagttcctggtggccaaaaggaaattcaaggagacact 1740  
 Db 1681 catccgctccatcaggattctcaagttcctggtggccaaaaggaaattcaaggagacact 1740

[illegible]

## RESULT 1

ID AAB01476 standard; Protein; 695 AA.

AC AABC1476;

IT 08-NOV-2000 (first entry)

DE KCNQ4 Potassium channel protein.

1. 1. 1.

FW Kcnq4; potassium channel; cardiac arrhythmia; neonatal epilepsy;  
 FW deafness; probes; treatment; therapy; transgenic animal; antibody;  
 FW agonist; antagonist; tinnitus; hearing loss; neonatal deafness;  
 FW presbycusis; affective disorder, Alzheimer's disease; anxiety;  
 FW ataxia; cognitive deficits; compulsive behavior; dementia;  
 FW depression; Huntington's disease; mania; memory impairment;  
 FW motor disorders; neurodegenerative disease; Parkinson's disease;  
 FW Pick's disease; psychosis; schizophrenia; spinal cord damage;  
 FW stroke; tremor.

CS Homo sapiens.

IN W0100044786-A1.

FD 03-AUG-2000.

XX  
 PF 10-JAN-1999; WPI-1000-548813/50.  
 XX  
 PR 10-JAN-1999; PRDF-1000076.  
 PF 10-MAY-1999; PRDF-1000093.  
 XX  
 PA NEUP- NEUROSEARCH AS.  
 XX  
 FI Jentsch TG;  
 XX  
 IR WPI; 1000-548813/50.  
 IR N-PSDB; AAA47619.  
 XX  
 FT Nucleic acids encoding the novel KCNQ4 potassium channel subunit,  
 FT useful e.g. for treating tinnitus, deafness, Alzheimer's and  
 FT Parkinson's diseases  
 XX  
 PS Claim 8; Page 48-51; 65pp; English.  
 XX  
 CC Mutations in 3 known genes of the KCNQ branch of the potassium  
 CC channel gene family underlie inherited cardiac arrhythmia's, neonatal  
 CC epilepsy and in some cases associated with deafness. KCNQ4 has been  
 CC mapped to the DFNA2 locus for autosomal dominant hearing loss, and  
 CC a dominant negative KCNQ4 mutation that causes deafness in a DNA  
 CC pedigree has been identified. KCNQ4 is the first potassium channel  
 CC gene underlying non-syndromic deafness. KCNQ4 is the heteromeric  
 CC channels with other KCNQ channel subunits, especially, KCNQ3.  
 CC Nucleotides encoding the KCNQ4 protein and the protein itself may be  
 CC used in the prevention, treatment and diagnosis of diseases  
 CC associated with inappropriate KCNQ4 expression. The nucleotides may  
 CC also be used as DNA probes in diagnostic assays (e.g. polymerase  
 CC chain reactions (PCR)) to detect and quantitate the presence of  
 CC similar nucleic acid sequences in samples and to identify mutations  
 CC within them, and hence which patients may be in need of restorative  
 CC therapy. They may also be used to study the expression and function  
 CC of KCNQ4 polypeptides and their role in metabolism, for example  
 CC through the production of transgenic animals. The KCNQ4 polypeptides  
 CC may be used as antigens in the production of antibodies and to  
 CC identify modulators (agonists and antagonists) of KCNQ4 expression  
 CC and activity. The anti-KCNQ4 antibodies and KCNQ4 antagonists may  
 CC also be used to down regulate KCNQ4 expression and activity. They may  
 CC be used in this way to treat tinnitus, loss of hearing (especially  
 CC progressive hearing loss, neonatal deafness and presbycusis  
 CC (deafness of the elderly)) and disease or adverse conditions of the  
 CC central nervous system (CNS) such as affective disorder, Alzheimer's  
 CC disease, anxiety, ataxia, CNS damage caused by trauma, stroke or  
 CC neurodegenerative illness, cognitive deficits, compulsive behavior,  
 CC dementia, depression, Huntington's disease, mania, memory impairment,  
 CC memory disorders and dysfunctions, motion disorders, motor disorders,  
 CC neurodegenerative diseases, Parkinson's disease, Parkinson-like  
 CC disorders, phobias, Pick's disease, psychosis, schizophrenia, spinal  
 CC cord damage, stroke and/or tremor. Conversely, antisense nucleic acid  
 CC molecules may be administered to down regulate KCNQ4 expression by  
 CC binding with the cells own KCNQ4 genes and preventing their  
 CC expression.  
 XX  
 SQ Sequence 695 AA;

Query Match 100.0%; Score 3608; DB 21; Length 695;  
 Best Local Similarity 100.0%; Pred. No. 0;  
 Matches 695; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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 Do 1 maeapprplglgpppgdapraelvaltavqseqgeaggggsprrlglgslpppgaplp 60  
 Qy 61 PGSGSGSACGQRSSAAHKFYERLQNWVYNVLERPRGWAFVYHVFIFLLVFSCLVLVSLVST 120  
 Do 61 pgsgsgsacgqrrssaahkryrllqnwvynvlerprgwafvyhvfifllvfvslvlst 120



Qy 181 LQEHQELANEOLLILEFVMIVVFGLEYIVRWWSAGCCCPYRGWQGPFRFARHFFCUIDFI 181  
 Db 181 lqehqelaneollilefvmivvfgleyivrwwsagcccpyrwgqgrfrfarkpfowidfi 181  
 Qy 181 VFWASVAVIAAGTQGNIFATSALRSMRFLQILRMVRNDRGGTWEKLLGSTVYAHSEKIT 141  
 Db 181 vfwasvaviaaagtqgnifatsalrsmrflqilrmvrndrggtwekllgstvyahskelit 141  
 Qy 141 AWYIGFLVLIFASFLVYLAEKDANSDFSSYADSLKXGTITLTITISYCDPTPHTWLPVLA 141  
 Db 141 awyigflvlifasflvylaekdandsdfssyadslkxgtitltitisyadktpnwljvula 141  
 Qy 111 AGFALLGISFFALPAGILGSGFALFWJE\_HPIHFFEFERHIAANLI\_AAGFALHIMKPA 111  
 Db 111 agfallgisffalpagilgsgfalfwje\_hpihffeferhianli\_aagfalhimkpa 111  
 Qy 361 YLTATWYYYDSILPSFRELALLFEHVQARNGGLRPLEVRRAPVPGAGPSRYPPVATCR 421  
 Db 361 yltatwyyysilpsfrelallfehvqarngglrplevrrapvpgagpsryppvatcr 421  
 Qy 421 PGSTSFPCGESSRMGIKDRIRMGSSQRRTGPSKQQLAPPTMPTSPSSEQVGEATSPTKVQ 480  
 Db 421 pgstsfpcgessrmgikdrirmgssqrrtgpskqqlapptmptspseqvgeatsptkvq 480  
 Qy 481 KSWSFNDRTFRASLRLKPRTSADAPSEEVAAEEKSYQCELTVDIMPVKTVIRSIRIL 540  
 Db 481 kswsfndrtfraslrlkprtsaedapseevaaeksyqceltvddimpavktvirsiril 540  
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 Db 601 dkgpsdaevevdeismmgrvkvkqvsiehfldlllgfysrclrsstaslgavqvpf 660  
 Qy 661 DPDITSDYHSPVDHEDISVSAQTLISISFVSTNMT 695  
 Db 661 dpditsdyhsyvdhedisvsaqtlisirsustnmd 695

RESULT 1  
 PCT-US00-09587-4  
 ; Sequence 4, Application PC/TUS0009587  
 ; GENERAL INFORMATION:  
 ; APPLICANT: Merck & Co., Inc.  
 ; TITLE OF INVENTION: Novel Human Voltage-Gated Potassium  
 ; TITLE OF INVENTION: Channel  
 ; FILE REFERENCE: 20430 PCT  
 ; CURRENT APPLICATION NUMBER: PCT/US00/09587  
 ; CURRENT FILING DATE: 2000-04-10  
 ; PRIOR APPLICATION NUMBER: 60/129,274  
 ; PRIOR FILING DATE: 1999-04-14  
 ; NUMBER OF SEQ ID NOS: 43  
 ; SOFTWARE: FastSEQ for Windows Version 4.0  
 ; SEQ ID NO 4  
 ; LENGTH: 695  
 ; TYPE: PRT  
 ; ORGANISM: Homo Sapiens  
 PCT-US00-09587-4

Query Match 100.0%; Score 3606; DB 1; Length 695;  
 Best Local Similarity 100.0%; Pred. No. 2.4e-295;  
 Matches 695; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 MAEAPPFRLGLGPPPGDAPFAELVALTAVQSEQGEAGGGGSPRLGLLGSPLPPGAPLPG 60  
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Qy 121 IQEHQELANECLLILEFVMIWVFGLEYIWRVWSAGCCCRYPGWQSRFRFARPPFCVIDFI 121
Db 121 IQEHQELANECLLILEFVMIWVFGLEYIWRVWSAGCCCRYPGWQSRFRFARPPFCVIDFI 121
Qy 181 WFWASWAVIAAGTQGNIFATSA LRSMRFLQILRMVRMDRPGGTWLLGSSVYAHSKELIT 181
Db 181 WFWASWAVIAAGTQGNIFATSA LRSMRFLQILRMVRMDRPGGTWLLGSSVYAHSKELIT 181
Qy 241 AWYIGFLVLIFASFLVYLAEDANSDFSSYADSLWWTITLTTIGYSDKTPHTWLGRVLA 241
Db 241 AWYIGFLVLIFASFLVYLAEDANSDFSSYADSLWWTITLTTIGYSDKTPHTWLGRVLA 241
Qy 301 AGFALLGISFFALPAGILGSGFALKVQEQHRQKHFEKRRMFAANLIQAARLYSTDMSPA 301
Db 301 AGFALLGISFFALPAGILGSGFALKVQEQHRQKHFEKRRMFAANLIQAARLYSTDMSPA 301
Qy 361 YLTATWYYYYSILPSFFELALLFEHVQARNGGLPPLNPPAFVPCDAPSPFVATDHP 361
Db 361 YLTATWYYYYSILPSFFELALLFEHVQARNGGLPPLNPPAFVPCDAPSPFVATDHP 361
Qy 421 PGSTSFPCGESSRMGIKDRIRMGSSQPRTPSPYQLAPPTMPTSPSEQLVGLAIGTIVY 421
Db 421 PGSTSFPCGESSRMGIKDRIRMGSSQPRTPSPYQLAPPTMPTSPSEQLVGLAIGTIVY 421
Qy 481 FSWSFNDRTPFRASLRLEPRTSAEDAPSEEVAAEFQYQCELTVDIMPVKTVPISIRIL 481
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Qy 541 FFLVAKFKFFETLRPYDVKDVEIQYSAGHLDMLGFIKSLQTFVDQIVGRGPGDRKAREKG 541
Db 541 FFLVAKFKFFETLRPYDVKDVEIQYSAGHLDMLGFIKSLQTFVDQIVGRGPGDRKAREKG 541
Qy 601 EFGPSDAEVVDEISMMGFVVVEFQVQSIEHFDLLLGFIYSPCLPSGTSASLGAVQVPLF 601
Db 601 EFGPSDAEVVDEISMMGFVVVEFQVQSIEHFDLLLGFIYSPCLPSGTSASLGAVQVPLF 601
Qy 661 DFDITSYHSPVDHEDISVSAQTLISIRSVSTNMD 695
Db 661 DFDITSYHSPVDHEDISVSAQTLISIRSVSTNMD 695

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RESULT 2

PCT-US00-09587A-4

; Sequence 4, Application PC/TUS0009587A

; GENERAL INFORMATION:

; APPLICANT: Merck & Co., Inc.

; TITLE OF INVENTION: Novel Human Voltage-Gated Potassium

; TITLE OF INVENTION: Channel

; FILE REFERENCE: 20430 PCT

; CURRENT APPLICATION NUMBER: PCT/US00/09587A

; CURRENT FILING DATE: 2000-06-23

; PRIOR APPLICATION NUMBER: 60/129,274

; PRIOR FILING DATE: 1999-04-14

; NUMBER OF SEQ ID NOS: 43

; SOFTWARE: FastSEQ for Windows Version 4.0

; SEQ ID NO 4

; LENGTH: 695

; TYPE: PRT

; ORGANISM: Homo Sapiens

PCT-US00-09587A-4

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Query Match          100.0%; Score 3608; DB 1; Length 695;
Best Local Similarity 100.0%; Pred. No. 2.4e-295;
Matches 695; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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 Db 181 VYVASVAVIAAGTQGNIFATSALRSMRFLQLRMWRMRPGGTWLLGSMVYAHCHFLIT 240

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 Db 301 AGFALLGISFFALPAGILGSGFALKVQEQHRQKHFEHRRMPAANLIQAAWFLYSTDMSRA 360

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 Db 361 YLTATWYYYSILPSFRELALLFEHVQRARNGGLRPLEVRRAPVPDGA PSRYPPVATCHR 420

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 Db 421 PGSTSFPCGESSRMGIFDRIRMGSSQRRTGPSKQQLAPPTMPTSPSSEQVGEATSPTKVQ 480

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 Db 481 KSWSFNDTRFRASLRLKPR TSAEDAPSEEVAAEESYQCELTWDDIMPAWTVIPSIFIL 540

Qy 541 KELVAKRAFKETLRPYDVKDVEIQYSAGHLDMLGRKSLQTRWDQIVGRGFSRPAPEFG 600  
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Qy 601 DKGPSEADEVVDEISMMGRVVKVEKQVQSI EHKLDLLLFYSRCLRSGTSASLGAVQVPLF 660  
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09492361results

SEQ ID NO 1

RESULT 1  
Accession: AM131994  
Length: 12170 bp  
Definition: Sequence 1 from Patent WO 0044786-A  
Accession: AM131994  
Version: AM131994.1 GI:10279597  
Keywords:  
Source: human.  
Organism: Homo sapiens  
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.  
Reference: 1 (bases 1 to 2335)  
Authors: Jentsch, T.J.  
Title: Novel potassium channels and genes encoding these potassium  
channels  
Journal: Patent: WO 0044786-A 1 03-AUG-2000;  
NEUROSEARCH AS (DK)  
Features: Location/Qualifiers  
source 1..2335  
organism="Homo sapiens"  
db\_xref="taxon:9606"  
CDS 83..12170  
note="KCNQ4"  
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EEVAEEKSYQCELTVDDIMPAVKTVIRSIRILKFLVAKRKFKETLRPY

1997

Query Match 23.1%; Score 539; DB 18; Length 1182;  
Best Local Similarity 73.7%; Pred. No. 3.7e-85;  
Matches 686; Conservative 0; Mismatches 245; Indels 0; Gaps 0

[illegible]

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 1370 tgaaggt 1430  
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 1610 ccactgt 1670  
 1670 ccactgt 1730

RESULT 3  
 AF033348  
 LOCUS AF033348 3232 bp mRNA PRI 21-JAN-1998  
 DEFINITION Homo sapiens potassium channel (KCNQ2) mRNA, complete cds.  
 ACCESSION AF033348  
 VERSION AF033348.1 GI:2801451  
 KEYWORDS .  
 SOURCE human.  
 ORGANISM Homo sapiens  
 Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Eumetazoa; Chordata; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.  
 REFERENCE 1 (bases 1 to 3232)  
 AUTHORS Singh,N.A., Charlier,C., Stauffer,D., DuPont,B.R., Leach,R.J., Melis,R., Ronen,G.M., Bjerre,I., Quattlebaum,T., Murphy,J.V., McHarg,M.L., Gagnon,D., Rosales,T.O., Peiffer,A., Anderson,V.E. and Leppert,M.  
 TITLE A novel potassium channel gene, KCNQ2, is mutated in an inherited epilepsy of newborns  
 JOURNAL Nature Genet. 18 (1), 25-29 (1998)  
 MEDLINE 98085864  
 REFERENCE 2 (bases 1 to 3232)  
 AUTHORS Singh,N.A., Charlier,C., Stauffer,D., DuPont,B.R., Leach,R.J., Melis,R., Ronen,R.M., Bjerre,I., Quattlebaum,T., Murphy,J.V., McHarg,M.L., Gagnon,D., Rosales,T.O., Peiffer,A., Anderson,V.E. and

Q# 431  
 , N363



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Qy 486 tgggaattcgtgatgatcctgggttttgggttggagtacatctctctctctctct 514  
 Db 513 TGGAAATCCTGACTATCTGCTGTTTGGTCTGAGATATTTCTGAGATCTTCTGAA 571

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 REFERENCE 1 (bases 1 to 3232)  
 AUTHORS Singh,N.A., Charlier,C., Stauffer,D., DuPont,B.R., Leach,R.J.,  
 Mellis,R., Ronen,R.M., Bjerre,I., Quattlebaum,T., Murphy,J.V.,  
 McHarg,M.L., Gagnon,D., Rosales,T.C., Peiffer,A., Anderson,V.E. and  
 Leppert,M.  
 TITLE A novel potassium channel gene, KCNQ2, is mutated in an inherited  
 epilepsy of newborns  
 JOURNAL Nature Genet. 18 (1), 25-29 1998  
 MEDLINE 98085864  
 REFERENCE 2 (bases 1 to 3232)  
 AUTHORS Singh,N.A., Charlier,C., Stauffer,D., DuPont,B.R., Leach,R.J.,  
 Mellis,R., Ronen,R.M., Bjerre,I., Quattlebaum,T., Murphy,J.V.,  
 McHarg,M.L., Gagnon,D., Rosales,T.C., Peiffer,A., Anderson,V.E. and  
 Leppert,M.  
 TITLE Direct Submission  
 JOURNAL Submitted (06-NOV-1997) Human Genetics, University of Utah, 2030E  
 15N Room 2100, Salt Lake City, UT 84112, USA  
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